

other way to travel than on foot. Even if they had escaped control, the nights would not have been long enough to let them reach a place where they might have found what is suggested, nor would that help in any way, as there was and is no malaria in those places. Arguing like that you might also say that the Italian sailors who got yellow fever on board of a man-of-war anchored in Rio harbor far away from the land, were attacked because they swam on shore at night time, following a classical example.

Messrs. Dyar and Knab think that mosquitoes, which have never been in contact with men before, cannot transmit disease. In order to test their thesis, you must put men in absolutely uninhabited places. This is, generally speaking, rather difficult, but it so happens that in Brazil roads and railways have been made in such conditions and nearly always there have been epidemics of malaria. I know also of epidemics of Leishmania sores, with good reasons attributed to the transmission by *Phlebotomus*, observed in absolutely deserted zones. I have also seen a small yellow fever epidemic amongst people living in a place where only wood mosquitoes could be expected. All this shows that the theoretical considerations have not been respected by the facts and all that is wanted is that the transmitter, whatever may be its past, belong to a category in which the parasite can thrive; then it must have repeated access to human beings, some of them being infected and some not immune. As the process of development takes time, its life must not be too short. For that reason repeated oviposition is a favorable condition.

Thus the discussion from my side is closed but I fully maintain the correctness of my observations.

ON A COLLECTION OF NEUROPTEROID INSECTS FROM THE PHILIPPINE ISLANDS.

BY NATHAN BANKS, *Bureau of Entomology.*

During the past year Prof. C. F. Baker has been sending me Neuropteroid insects from the Philippines for determination. Hardly any forms were recorded previously, and since most of them are new, it is desirable to publish the descriptions. Hardly sufficient material is yet available to show the relationships of the fauna, and very little is known from Borneo, but from Java a considerable number are described and some of these occur in the Philippines, but more often related species.

The 39 species here recorded are all from one island of the group and from a restricted part of that island. It is therefore probable

that the total fauna in these groups of insects will amount to several hundred species. The Psocidæ and the Trichoptera will be particularly rich in new species, while the several families like Panorpidæ and Coniopterygidæ as yet unrepresented will be found to occur in several species.

PSOCIDÆ.

Myopsocus enderleini Bks.

From Los Banos.

Cæcilius sp.

Two specimens from Los Banos; a plain unmarked species.

Psocus bakeri n. sp.

Markings in general similar to *P. cosmopterus*, especially the apical band of wings, the basal band runs obliquely across up to the radius, and is very broad behind. The stigma is prominently, uniformly reddish (not yellowish), and behind it is angulate. The first long joint of the antennæ is (except tip) pale yellow, not at all brownish; legs pale, tips of tibiæ and tarsi blackish. The radial sector and the median vein are united only at a point, and in some cases even connected by a short cross-vein.

From Los Banos, Philippines (Baker), on bark of tree in forest. Because of the shape of the median cell, and of the angulate stigma, and slightly different markings I think it is a separate species rather than a variety of *P. taprobanes*, these characters hold in all the numerous specimens. It is a size smaller than the Javan *P. taprobanes* in my collection.

Tæniostigma bimaculata n. sp.

Very pale yellowish throughout, with two large shining black spots on the mesonotum, one on each side lobe; antennæ deep black and black haired, basal fifth of the fourth (and others beyond) joint is white; no spot on head; last tarsal joint black, rest of legs pale. Wings with the lower border of the stigma brown (like *T. ingens*), the cubital vein also black and black bordered; the median cell much broader at tip than in *T. ingens*, and the median and radial sector united for a longer distance than in that species the "areola postica" has a very narrow base above on the median vein, scarcely one-half as long as that of the apical cells; radial sector forks a little before last branch of the median. Length, 7 mm.

From Los Banos, Philippines (Baker).

PERLIDÆ.

Neoperla clarissa Bks.

From Los Banos.

Neoperla recta n. sp.

Brownish, a dark spot on the clypeus; antennæ beyond first joint is black for some distance; setæ black at tips, tibiæ dark, wings with brown tinge, and brown venation. Ocelli large, about diameter apart, fully as close to bosses, which are situate about as far from eyes, clypeal margin truncate; pronotum strongly convex in front, much narrowed behind, surface rugulose. In fore-wings radial sector with three branches in female, two in male, in all cases with a few cross-veins between them; about 7 median, and 6 cubital cross-veins, and four cubitals in hind-wings, the veinlet connecting radius and sector straight; the first axillary in hind-wings ends in four branches, not connected to next axillary. The ventral plate of female is simply slightly, evenly convex. Expanse, female 35 mm.; male 27 mm.

Los Banos and Mt. Makiling.

Neoperla obliqua n. sp.

Wholly pale yellow; eyes and ocelli black and base of antennæ (except basal joint) rather dusky. Ocelli small, much more than diameter apart, as close to each other as to the bosses, these latter much nearer to the eyes; clypeal margin rounded; pronotum broader in front than head, a little narrowed behind, front margin only slightly convex, surface rugulose. Wings with venation pale yellow; no cross-veins in apical part of wing; radial sector with two branches beyond anastomosis, about 8 median, and 6 cubital cross-veins, in hind wings only 3 to 5 cubital cross-veins, the first axillary in hind-wing ends in three branches, one connected to next axillary; in the fore-wings the veinlet connecting radius and sector is strongly oblique. In female the ventral plate is not developed. Expanse, 35 mm.

From Mt. Makiling.

MYRMELEONIDÆ.

Formicaleon cleonice n. sp.

Head yellowish; a dark band below antennæ, and a fainter band above them; vertex with two rows of connected spots; pronotum with a broad median dark stripe, divided by a pale median line, and sides dark, between these dull gray yellowish, not clear, two long black bristles each side and lower sides with long white hairs; rest of thorax with median pale line, and interrupted pale stripe each side; pleura pale, with few dark spots. Abdomen dull blackish, first segment pale above, second with pale basal streak, forked behind, at middle of second and third segments is a distinct black spot, other segments pale on base, but not clearly marked, last segments with pale at each apical lower corner. Legs pale, femora infuscated above, tibiæ with premedian dark band, and other spots and dots, hind tibiae with dark line on inner side, tips of tarsal joints dark. Wings hyaline, veins with dark spots, radius with longer dark spaces, outer gradates dark,

forming an oblique streak, and the forkings of veins beyond are dark; stigma barely distinct, cross-veins dark at ends; in hind-wings there is a dark dot at end of median and cubital veins. Antennæ rather long and slender, annulate throughout with dark; pronotum planly broader than long, not narrowed in front; abdomen shorter than the wings; wings shaped as in *F. dirus* and *F. morpheus*, eight cross-veins before the radial sector in fore-wing; thirteen branches to radial sector, about 48 costals before stigma; legs rather short, spurs as long as three joints or a little more, last tarsal joint as long as others together. Expanse, 76 mm.

From Los Banos, Philippine Islands (Baker.) Closely related to *F. dirus* (of Ceylon) and *F. morpheus* (which occurs in several Malay Islands, Java, etc.), but abdominal marks will distinguish it at once; the Ceylonese *F. gravis* and the Australian *F. vafer* are also different, and not closely related to *F. dirus*.

Formicaleon disjunctus n. sp.

Dark brown, with paler brown marks. Face below antennæ yellow, tips of antennæ pale, vertex with a transverse row of six rufous spots, the lateral next to eye, the inner pair contiguous; pronotum with a gray median line, not distinct, outer margin blackish, mesothorax with large gray spot behind and a median line in front, and a short gray line on each lateral lobe; metathorax mostly gray above, but with a black mark at inner anterior part of lateral lobes; abdomen with pale transverse spots at base and before middle of several segments; legs pale, tips of last tarsal joint, tip of tibiæ and middle of fore and mid-tibiæ black, black and a few white bristles on legs, many are much longer than width of the joint, femora rather densely clothed with fine white hair. Wings hyaline, veins interrupted black and white, ends of many cross-veins dark, but others wholly pale, base of stigma dark, a dark spot on the cross-vein behind it and on cross-vein beyond; gradates and outer forkings clouded with dark, and a spot at end of anal vein of the fore-wings. Antennæ long and slender; pronotum little longer than broad, and slightly narrowed in front; spurs equal two; tarsal joints. Wings rather slender, acute at tips, six cross-veins in fore-wing before radial sector, 9 branches to radial sector, 5 cross-veins between anal and cubital fork in fore-wings, one such veinlet in the hind-wings; gradates much disjointed, in three series, the anterior a row of 5, behind are two rows one before of four veinlets, and one beyond the anterior row of three veinlets; behind the stigma the cross-veins are almost in even rows. Expanse, 57 mm.

From Los Banos and Mt. Makiling, Philippine Islands (Baker).

ASCALAPHIDÆ.

Suhpalasca princeps Gerst.

One from Los Banos; described from Java.

CHRYSIDÆ.

Ancylopteryx 8-punctata Fabr.

Several from Los Banos; common in Malasia.

Ancylopteryx doleschali Brauer.

From Los Banos; known from Amboina.

Nothochrysa inæqualis Walk.

From Los Banos; a common species from India and Insulinde, and redescribed by various writers.

Nothochrysa evanescens McLach.

From Los Banos; one specimen is of the variety *everetti* van der Weele. Recorded from nearby islands.

Chrysopa isolata n. sp.

Wholly pale yellowish green, (probably green when alive) stigma deeper green, a black dot each side at base of clypeus, otherwise unmarked. Pronotum much broader than long, slightly narrowed and rounded in front, transverse groove about in middle. Wings slender, apex acute, venation unmarked, 14 costals before stigma, 3 or 4 inner gradates, 6 to 7 outer ones, the inner series is nearer to outer than to radial sector, and each of inner series is farther from next than its own length, outer marginal forks not twice as long as broad; divisory veinlet ends beyond the cross-vein, second cubital cell about as long as the third, narrowed at tip, but near base about as wide as the third. Hind-wings with two or three very widely separated gradates in inner series, and five or six in outer row; 8 radial cross-veins; in fore-wings 9 or 10 radial cross-veins. Expanse, 22 mm.

Los Banos, Philippine Islands (Baker). Near to *Ch. noumeana* Navas (which I have seen in Paris) but the arrangement of gradates is very different.

Chrysopa tagalica n. sp.

Pale greenish, face yellowish, a yellow median stripe through thorax, antennæ yellow, no marks on head, palpi nor antennæ; wings hyaline, with green venation, stigma rather more distinct. Wings slender, acute at tips, divisory veinlet ends beyond the cross-vein, second cubital cell about as long as the third, both narrowed toward each other, 10 radial cross-veins; in both wings 5 inner gradates and 6 outer, the two series wide apart, the inner much nearer, especially above, to the radial sector than to the outer, and outer much nearer margin than to inner, outer marginal forks about twice as long as broad. Expanse, 22 mm.

From Los Banos, Philippine Islands (Baker).

Probably related to *Ch. ochracea*, (which I have not seen) but latter is darker, with marks on thorax.

***Apochrysa bellula* n. sp.**

Yellowish, head mostly bright red, all over face to clypeus and over anterior part of vertex, not leaving pale around antennæ; basal joint of antennæ faintly brownish in front; pronotum wholly pale; rest of thorax, above, except lateral margin, blackish or dark greenish. Fore-wings with black spot on inner gradates, in fore-wings part of radial sector near stigmal region is black, the inner gradates, three of outer, and the cross-veins beyond the union of medius and cubitus are black; in hind-wings only these latter cross-veins black. The fore-wings are about once and one-half as broad as hind-wings. Expanse, 54 mm.

From Los Banos.

Related to *A. albardæ* but middle area of wing broader, and no spot on outer gradates. From *A. coccinea* it differs in more red on head, no stripe on pronotum, and broader hind wings. *A. aurifera*, is very distinct, and also from *A. albardæ* in that the first black spot is nearer to base of wing.

HEMEROBIIDÆ.

***Sisyra bakeri* Bks.**

From Los Banos; the first record of the genus is Insulinde.

***Micromus pusillus* Gerst.**

From Los Banos; recorded from Java.

***Notiobiella affinis* Bks.**

From Manila.

OSMYLIDÆ.

***Spilosmylus modestus* Gerst.**

Mt. Makiling. Known from Java.

MANTISPIDÆ.

***Climaciella luzonensis* van der Weele.**

Several specimens of this handsome species from Los Banos; described from the Islands.

***Mantispa luzonica* Navas.**

Apparently common at Los Banos.

***Euclimacia tagalensis* n. sp.**

Body rufous throughout, no marks on face, a black band across posterior vertex, the extreme base and apex of antennæ pale yellow, scutelli pale yellow, with the mark extending down on the pleura; a narrow band at base of prothorax black, and dark spots over base of wings; no marks on the abdomen, the anterior femora with faint dark cloud each side near tip. Face irregularly rugose, with short ridges; antennæ short and stout; pronotum short, anterior part very broad, behind the constriction are two roughened tubercles (as in *E. strenua*), and behind these are sulci. Wings long and slender, costal portion embrowned, but not very darkly, fading off behind, broader at base, very faint, but broad at tip. Venation very similar to that of *E. partita* (as figured by Enderlein); costal area very narrow, 11 costals in fore-wing, 9 in hind-wing, 5 cross-veins beyond the stigma; 14 discal cells. Expanse, 36 mm.

From Los Banos, Philippine Islands (Baker).

***Mantispa enderleini* n. sp.**

Similar to *M. amabilis*, but distinguished by the radius being clear yellow out to the stigma. Yellow; a brown stripe from between antennæ down to the mouth; antennæ brown, except the yellow base; a brown spot each side the base of antennæ; pronotum with brown anterior marginal line, some dark spots on the thorax and pleura, abdomen mostly yellow, a black spot at apex of each segment above, broadened out behind, ventral segments margined with dark; legs pale yellow, femur is mostly blackish within, a median brown cloud on the outer side. Wings hyaline; stigma reddish long and slender; venation black, but the radius in both wings is yellow. Base of the median, and the anal vein, also yellow. First radial cell with one branch, second and third each with two branches; cells beyond end of stigma broader than long; six costal cross-veins. Length 10 mm.

From Los Banos, Philippines (Baker).

TRICHOPTERA.

***Anisocentropus magnificus* Ulmer.**

One from Los Banos; described from the Islands.

***Notanatolica magna* Walk.**

From Los Banos; widely distributed in Malasia even from Australia to Japan.

***Notanatolica opposita* Walk.**

Several from Los Banos; not as widespread as *N. magna*.

***Æcetinella confluens* Ulmer.**

From Los Banos: described from Celebes.

***Leptocella bakeri* n. sp.**

Pale whitish yellow; antennæ beyond the basal third marked with brown; wings with a few dark brown patches; two near the base, one at base of discal, and one at base of median cell, one above middle of discal cell, a smaller one at base of stigma, and one at base of each of the apical forks, the first rather the smaller; the anastomosis dark, especially behind; legs and body pale yellowish. Wings slender as usual; the median cell arises about its width before the discal, forks one and three equal, with pedicel one-half as long as the fork, fork five truncate at base, discal cell not drawn up by a cross-vein towards the radius. In hind-wings the costal venation faintly indicated. Expanse, 18 mm.

From Los Banos, Philippine Islands (Baker).

***Setodes apicipennis* n. sp.**

Pale yellowish; basal joints of the antennæ very large, palpi gray haired, rather darker toward tips. Wings pale yellowish, long, slender, acute at tips, costal hairs nearly clear yellow, others dull yellowish; anal area blackish, some black scale-like hairs along the veins; a black spot at stigma, and one below it on the base of fork one; outer margin beyond the stigma around to the opposite side on the hind margin with seven black spots, each at the end of a vein; outer fringe gray, at anal angle very long; hind-wings very slender, hyaline, with long gray fringe, one and one-half times as long as the width of the wing. Legs very slender, pale yellow, tips of tibiae and the tarsi dark, but in middle legs the last two tarsal joints are white. Expanse, 10 mm.

From Los Banos, Philippine Islands (Baker).

***Tagalopsyche* n. gen.**

Venation very similar to *Setodes*, fore wings with forks 1, 3, and 5, also in hind wings. Spurs 0 (or 1), 2, 2. No spur is visible on the front tibia, but it may have been broken. There are no hairs on the surface of the wing, but the veins have a row of hairs, all pointing the same way. It differs from all *Leptocerids* in the broadly rounded apical part of fore-wing, and from *Setodes* also in the much broader hind-wings. Maxillary palpi with second, third, and fourth joints very long, the third contracted in middle, all with only a few erect hairs.

***Tagalopsyche sisyroides* n. sp.**

Rich, uniform, dark, chocolate brown. Antennæ pale yellow, beyond a few basal joints the tip of each joint is faintly dark; legs rather pale, but mostly dull brownish, the apical half of the hind tarsi pale, front tibia

pale; abdomen black, short, no distinct appendages, but short processes below and in middle. Fore-wings with a hyaline white dot on the thyridium; hind-wings dark like the fore pair, the posterior fringe quite long and black. Expanse, 11 mm.

From Los Banos, Philippine Islands (Baker).

***Dipseudopsis nervosa* Brauer.**

From Los Banos; described from the Islands.

***Dipseudopsis nebulosa* Albarda.**

Two from Los Banos; known from Sumatra.

***Dipseudopsis luctuosa* n. sp.**

Head reddish yellow, a median vertical black mark on face; vertex with a median black stripe; palpi black; antennæ blackish, except a few basal joints are yellow; pronotum yellow, black on the lower sides and in front; rest of thorax dull blackish; abdomen dark, with apical margins of segments, above and below, pale; legs yellowish, rufous on tips of tibiæ and on the tarsi, front coxæ black. Wings dark brown, with white hyaline spots and streaks as in the figure; a long streak below radial sector, one over bases of third, fourth and fifth apical cells, three elongate spots near anal angle, and streaks in basal part in cubital and median areas. Hind wings dark, but paler near base and in middle of some of the cells. In fore-wing fork I is rather longer than its pedicel, second fork a little back on discal cell, third with a very short pedicel, fourth extends back on median cell about width of that cell, fifth not reaching the cross-vein at base of median cell. Spurs as figured. Expanse, 38 mm.

From Los Banos, Philippine Islands (Baker).

***Hydromanicus cinctipennis* n. sp.**

Body dark, antennæ dark, toward base almost black, serrate within; palpi dark, last joint extremely long; vertex deep black in middle. Wings similar to *H. fasciatus*, with a white band, but general surface is darker than *H. fasciatus*. Venation closely similar to *H. fasciatus*. Distinct from *H. fasciatus* by dark (instead of yellowish) head, thorax, and legs, and rather larger than that species. Expanse, 16 mm.

From Los Banos, Philippine Islands (Baker).

***Hydropsychodes costalis* n. sp.**

Body dark brown, or blackish; antennæ pale, in the female marked with brown in a spiral manner; head and thorax with some golden yellow hair; legs pale, dark at tips of the tibiæ, hind tibia all dark, tarsi mostly dark, leg I of male pale. Wings dark brown, darkest along costal area, and here, with three large yellowish spots with irregular margins, one at the stigma

and two before it, another large irregular spot at the anal angle, broken above by dark spots; some connected yellowish spots near base of wing, and a number of small spots in discal part of wing. Hind-wing infuscated, with two paler costal spots, one each side of the stigma. Venation practically the same as *H. kræpelini*, fork I in fore-wings as long as its pedicel, the cross-veins behind base of the median cell not interstitial; in hind-wings fork III is a little longer than in *H. kræpelini*. The lower appendages of male are greatly thickened at tip. Expanse, 10 mm.

From Los Banos, Philippine Islands (Baker).

Ecnopsyche n. gen.

A *Hydropsychid*, with distinct ocelli, venation of four wings very similar to *Hydropsychodes* and *Ecnomus*, especially in anal veins and short fifth fork, spurs, 2, 4, 4. Fore wings with forks 1, 2, 3, 4, 5; hind wings with forks 2, 3, 5; discal cell in both pairs closed, and in both a cross-vein from discal cell to the radius. Antennæ with long, slender joints; maxillary palpi with joints two and three subequal and fusiform, fourth cylindrical and equal to third, fifth twice as long as the fourth.

This genus, by presence of ocelli, would go in Ulmer's family *Philopotamidæ*, but the venation is very different from any genus therein, and more allied to true *Hydropsyche*. *Stenopsyche* has venation also very different from *Philopotamus*, and so I cannot consider the presence of ocelli as a family character. Likewise Ulmer puts *Ecnomus* in the *Polycentropidæ* because of the 3, 4, 4 spurs, but I agree with McLachlan in considering this genus closely related to *Tinodes*, so that a family, *Polycentropidæ*, based on the spur formula, is to me, an unnatural association, and I prefer to keep the family *Hydropsychidæ* in the old sense, with many small groups based on various characters under it. It may be well here to record the fact that the *Hydropsychidæ* differ from other caddice flies in lacking bristles on the dorsum of the thorax, fine hair only being present.

Ecnopsyche reticulata n. sp.

Yellowish; antennæ very faintly darker at tips; vertex with rather sparse golden hair; wings pale yellowish, reticulate with pale brown, which forms many bands connecting the veins, rather dark at anastomosis, on the outer margin. The wing is pale brown, with many small hyaline spots, indistinct dark spots at the ends of the veins; venation yellowish; hind-wings hyaline, venation yellowish, especially near the costa. Legs pale yellow, very slender, spurs more rufous; abdomen dull black, genitalia yellowish. Lower appendages of male no larger at tip than at the base, the apical joint very slender. Expanse, 15 mm.

From Los Banos, Philippine Islands (Baker).

Polycentropus sp.

One from Los Banos; may not belong to genus in restricted sense.

Chimarrha luzonica n. sp.

Head yellowish, antennæ pale yellowish, palpi dark brown, erect hair each side on vertex; thorax and abdomen dark, legs pale yellowish, but the spurs dark brown; wings gray blackish, nearly uniform, with sparse black hairs, veins darker; hind wings colored like fore wings, fringe black at tip, gray behind, fork 3 of hind-wings with a very long pedicel, fully twice as long as the fork; discal cell of fore wings rectangular, anal veins separate at ends. Expanse, 10 mm.

From Los Banos, Philippine Islands.

EXPLANATION OF PLATES.

- Fig. 1. *Chrysopa isolata*, cubital cells.
- Fig. 2. *Tagalopsyche sisyroides*, wings.
- Fig. 3. *Dipseudopsis luctuosa*, wing, and spur.
- Fig. 4. *Dinarthroides niger*, male appendage.
- Fig. 5. *Dinarthroides niger*, head and antenna.
- Fig. 6. *Echnopsyche reticulata*, wings.
- Fig. 7. *Tagalopsyche sisyroides*, palpus and genitalia.
- Fig. 8. *Chimarrha luzonica*, fore wing.
- Fig. 9. *Hydromanicus cinctipennis*, genitalia.
- Fig. 10. *Neoperla recta*, head and part of wing.
- Fig. 11. *Echnopsyche reticulata*, genitalia.
- Fig. 12. *Neoperla obliqua*, head.
- Fig. 13. *Dinarthroides niger*, fore wing.
- Fig. 14. *Hydropsychodes costalis*, genitalia.
- Fig. 15. *Leptocella bakeri*, genitalia.
- Fig. 16. *Chrysopa tagalica*, cubital cells.
- Fig. 17. *Neoperla obliqua*, part of wing.

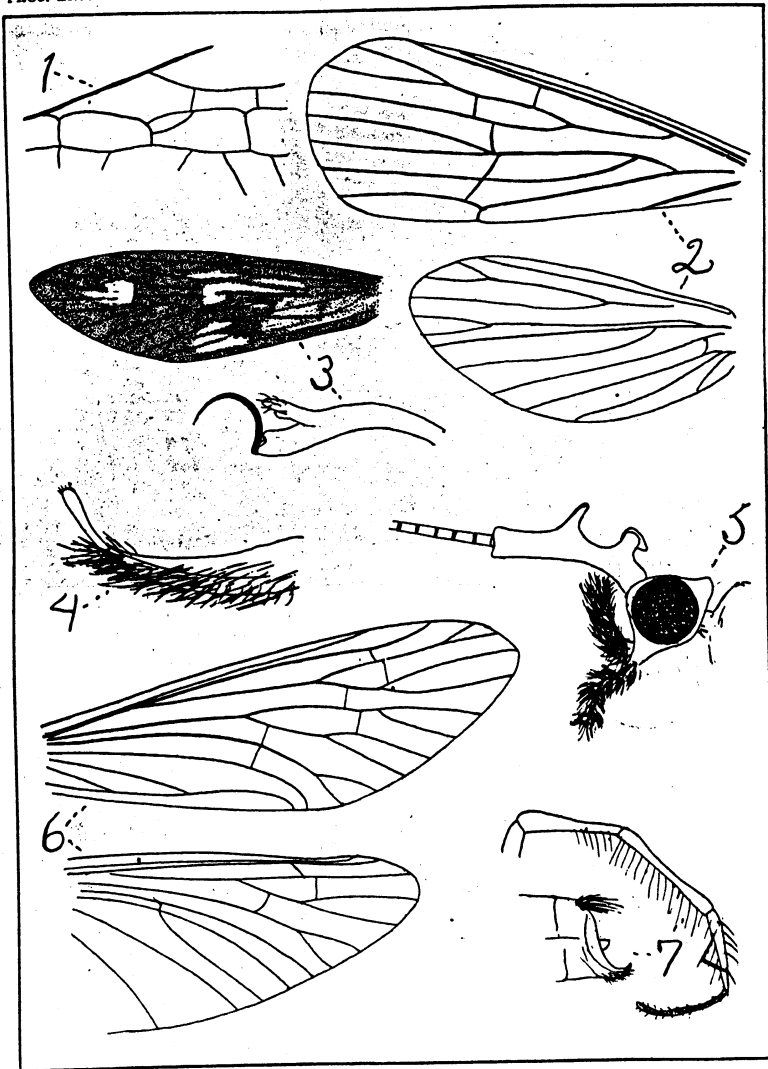
DESCRIPTIONS OF NEW PARASITIC HYMENOPTERA.

By S. A. ROHWER, *Bureau of Entomology.*

The following miscellaneous descriptions of new parasitic Hymenoptera are presented at the present time so that the names of certain species which have proven to be of economic importance in controlling forest insects and other injurious insects will be made available for discussion in economic papers.

Ichneumon brunneri, n. sp.

Seems to belong to the group of *Barichneumon* and runs there in Ashmead's table of the genera, but Morley says that this group



CHARACTERS OF NEUROPTEROID INSECTS FROM PHILIPPINES.